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Q68

In a pressure cooker, the temperature at which the food is cooked depends mainly upon which of the following? 1. Area of the hole in the lid 2. Temperature of the flame 3. Weight of the lid Select the correct answer using the code given below (a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3 Official key: C.

UPSC Civil Services Prelims 2021 · General Studies · 2 marks · Science and Technology

Science, technology, space, defence, IT - Prelims GS Paper I.

Explanation**(a)**

1 and 2 only. Flame temperature does not set the boiling point once the cooker is at its rated pressure.

(b)

2 and 3 only. The vent area matters; the flame does not, as keyed.

(c) Official key

1 and 3 only. Hole in the lid and weight of the whistle set the pressure, hence the cooking temperature.

(d)

All three. Statement 2 is the miss.

Summary

Official key is (c) 1 and 3 only. Cooking temperature in a pressure cooker is the boiling point of water at the pressure fixed by the vent and the weight. Turning the flame up mainly shortens the time to that pressure, not the temperature once it is reached.

Related possible facts

These can be asked in a future Prelims paper.

Whistle / regulator

A calibrated weight on a vent.

Clausius-Clapeyron

Boiling point rises with pressure.

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